

## ABSTRACT

An aromatic polymer electrolyte that when directly used in a methanol fuel cell, excels in methanol shutoff, etc. There is provided a polymer electrolyte comprising polymer main chains containing oxygen elements and/or sulfur elements and aromatic carbon rings and, directly bonded to some or all of the aromatic carbon rings of the entirety of the polymer electrolyte including side chains, ion exchange groups, wherein the ratio (R) of the number of aromatic condensed polycyclic carbon rings to the total number of aromatic carbon rings of the entirety of the polymer electrolyte including side chains (sum of the number of aromatic monocyclic carbon rings and the number of aromatic condensed polycyclic carbon rings) satisfies the formula:  $1 > R \geq 0.15$ .